



2023

Music and Academics: The Ultimate Mashup?

Emmah Keller

Follow this and additional works at: <https://digitalcommons.butler.edu/buhealth>



Part of the [Medicine and Health Sciences Commons](#), and the [Music Therapy Commons](#)

Recommended Citation

Keller, E. Music and academics: the ultimate mashup? BUHealth. 2023; 1(1).
<https://digitalcommons.butler.edu/buhealth/vol1/iss1/5>.

This Articles and Multimedia is brought to you for free and open access by Digital Commons @ Butler University. It has been accepted for inclusion in BUHealth by an authorized editor of Digital Commons @ Butler University. For more information, please contact digitalscholarship@butler.edu.



Music and Academics: The Ultimate Mashup?

Emmah Keller

Music surrounds us. It is a significant part of our daily lives. People listen to music in a variety of settings and for multiple reasons. Students often listen to music while studying, in hopes of increasing productivity. Others listen to music as a way to relax before an exam. Yet...is there proof that music is beneficial for academic performance? Research shows that music and academics is a good mashup. Study after study reveals that music has several benefits for students. It reduces anxiety, improves focus and concentration, and enhances cognition. These all result in improved academic performance. So, students who would like to positively impact their performance in school should mix music with academics.

Keywords: *music, academic performance, learning*

Music plays a significant role in our society today due to its wide accessibility and frequent consumption. In the US alone, the average person spends seventy-five minutes listening to music every day. Globally, the average person listens to thirty-two songs per day.¹ However, it is not just the impressive amount and frequency that should be noted when talking about music. Research has also linked music to numerous health benefits including anxiety reduction and memory improvement.² So what would happen if music and academics were mixed? Are there benefits to listening to music while being a student? Research suggests that the two pair well together. In fact, listening to certain types of music while studying and before exams can have several benefits including improved focus and overall brain function.² These benefits can ultimately lead to increased academic performance among students.

One benefit of combining music and academics is anxiety reduction, allowing one's mind to relax and perform better. This is thought to be one of the reasons why people listen to music so frequently. Specifically, music is able to reduce anxiety because of its ability to increase dopamine production.³ Dopamine is a neurotransmitter that regulates a variety of functions including but not limited to spatial memory function, reward and pleasure, motivation, and arousal.⁴ Therefore, such a rise in dopamine helps to counteract feelings of anxiety.³ A randomized control trial conducted in 2017 tested the effects of music on stress before exams and academic performance. A group of nursing students were randomly assigned to one of two groups in which the experimental group would listen to music considered relaxing and receive progressive muscle relaxation before an exam. The control group did not listen to music nor receive muscle relaxation before the exam. Two blood samples and basic vitals were taken for each student with the first done on a non-exam day and the second done prior to the exam but after the intervention of the experimental group. For the group of

nursing students who listened to music before the exam, it was found that they had lower heart rates on exam day than the control group who did not receive any intervention. Additionally, students who were part of the control group were found to have increased blood pressure, heart rate, and cortisol on the exam day versus a non-exam day. Cortisol is a hormone that affects almost every organ in the body. It is released in response to various types of stress, including acute, chronic, and traumatic stress.⁵ An increased cortisol level, along with increased heart rate and blood pressure, are all strong indicators of higher stress, thus impacting performance.⁶

Another benefit of mixing music and academics is that studying with background music can improve focus and concentration. Goltz and Sadakata surveyed 140 participants (ages 17-75) online about their use of background music while performing various tasks. When asked about studying with music, a little over half of the participants stated that background music did help improve their focus while studying. Not only that, but 20.1% of the participants answered that they strongly or completely agree that background music betters their focus while studying.⁷ While this study showed a correlation between music and improved study focus, it should be noted that the type of music playing in the background can affect results. Listening to classical music and other types of string instrument music without lyrics tends to be less distracting. On the other hand, listening to music with lyrics while studying can worsen concentration compared to studying in silence. The theory behind this is that lyrics make the brain multitask and therefore, more difficult to focus on studying.³ To effectively take advantage of music's potential benefits, it's important to consider the type of background music.

To further this point, a study by Fernandez and colleagues used functional magnetic resonance imaging (fMRI) to measure brain activity and attention while listening to music. Fifty-two participants listened to four

types of emotion-provoking music and were then asked to complete a certain task. Results showed that when exposed to pleasant/joyful music, participants' attention and response times were better than when exposed to sad/tender music. Response time and attention were additionally faster and improved, respectively, when exposed to pleasant/joyful music versus being exposed to silence. What is interesting about this study is that it claims to be the first to look at background music's impact on emotions, and ultimately performance on a task.⁸ Future related studies will have the opportunity to replicate these results, furthering knowledge on the impact of music on academic performance.

As mentioned, incorporating music into academics is beneficial as music can improve overall brain function. Listening to music is known to activate both sides of the brain simultaneously.² This alone is thought to improve memory and learning. However, a study by Cabanac and colleagues established a solid correlation between music and cognition. A group of secondary level students were required to take music courses their first two years of studies. During the next three years, they were allowed to choose whether to continue taking music classes. At the end of two years, the students' grades were recorded, and results showed significant differences among the two groups of students. For the students that chose to continue taking musical classes, their grades were higher in every single subject compared to those who chose not to take music courses.⁹ These results, if replicated, could be an indication for a music course requirement for all students.

Current research supports the idea that music can, and should, be incorporated into academics, whether that be through taking music-related courses or simply studying with background music. Data continues to show that music has the potential to positively affect one's performance by decreasing stress, improving focus, and enhancing brain cognitive abilities. Although classical music is ideal, music preference is unique among individuals, so students wanting to study with music should choose the type they enjoy most. Future research should further explore this topic, not only to assess correlation between music and academic performance but also whether emotional responses

evoked by music impacts academic performance as well.

REFERENCES

1. Music streaming statistics in 2023 (US & global data). Musical Pursuits. Updated December 28, 2022. Accessed February 12, 2023. <https://musicalpursuits.com/music-streaming/>
2. The benefits of studying with music. Florida National University. August 13, 2019. Accessed February 21, 2023. <https://www.fnu.edu/benefits-studying-music/>
3. 9 health benefits of music. NorthShore University Health System. December 31, 2020. Accessed February 21, 2023. <https://www.northshore.org/healthy-you/9-health-benefits-of-music/>
4. Klein MO, Battagello DS, Cardoso AR, et al. Dopamine: functions, signaling, and association with neurological diseases. *Cell Mol Neurobiol*. 2019;39(1):31-59. doi:10.1007/s10571-018-0632-3
5. Cortisol: what it is, function, symptoms & levels. Cleveland Clinic. Updated December 10, 2021. Accessed April 11, 2023. <https://my.clevelandclinic.org/health/articles/22187-cortisol>.
6. Gallego-Gómez JI, Balanza S, Leal-Llopis J, et al. Effectiveness of music therapy and progressive muscle relaxation in reducing stress before exams and improving academic performance in Nursing students: A randomized trial. *Nurse Educ Today*. 2020;84:104217. doi:10.1016/j.nedt.2019.104217
7. Goltz F, Sadakata M. Do you listen to music while studying? A portrait of how people use music to optimize their cognitive performance. *Acta Psychol (Amst)*. 2021;220:103417. doi:10.1016/j.actpsy.2021.103417
8. Fernandez NB, Trost WJ, Vuilleumier P. Brain networks mediating the influence of background music on selective attention. *Soc Cogn Affect Neurosci*. 2019;14(12):1441-1452. doi:10.1093/scan/nsaa004
9. Cabanac A., Perlovsky L, Bonniot-Cabanac MC, et al. Music and academic performance. *Behav Brain Res*. 2013;256:257-260. doi:10.1016/j.bbr.2013.08